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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. |
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| 09/591,622 | 06/09/00 | MATSUDA | S 15162/02100 |

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EXAMINER

DOUGHERTY, T

ART UNIT

PAPER NUMBER

2834

DATE MAILED: 05/16/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.

09/591,622

Applicant(s)

MATSUDA ET AL.

Examiner

Thomas M. Dougherty

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE ____ MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 June 2000.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-6, 8, 10, 11, 13 and 15-17 is/are rejected.
- 7) ☒ Claim(s) 7, 9, 12 and 14 is/are objected to.
- 8) ☐ Claims ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are objected to by the Examiner.
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

- 15) ☒ Notice of References Cited (PTO-892)
- 16) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 17) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 5.
- 18) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 19) ☐ Notice of Informal Patent Application (PTO-152)
- 20) ☐ Other:

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DETAILED ACTION

Claim Objections

Claim 15 objected to because of the following informalities: "gas" is used in line 3 of the claim while it is believed that the Applicants intended "has" to be used.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-5 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. No antecedent basis in the disclosure was found for "a base member for folding base ends of the displacing devices ..." cited in claim 1. Additionally, the description of this member within the claim itself is not understood. Claims 2-5 are rejected here due to their dependence on claim 1.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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Claims 1, 2, 5, 10, 11, 13 and 16 are rejected under 35 U.S.C. 102(b) as being anticipated by Okada et al. (JP 62-58883). Okada shows (fig. 4) an actuator comprising: a plurality of displacing devices (1, 2) for generating displacements (5, 6); a compound member (8) connected to the displacing devices (1, 2) and for compounding displacements of the displacing devices (1, 2); a base member (10) for folding base ends (as best understood, the base member turns or folds the displacing devices towards each other) of the displacing devices (1, 2) at which the compound member (8) is not connected; a pressing member (3, 4) for pressing the compound member (8) to an object (9) to be driven; and a driver (inherent) for resonantly driving the displacing devices (1, 2) so as to move the compound member (8) along an elliptic or circular trail. A natural frequency of the displacing devices (1, 2) in a first natural vibration mode in which the displacing devices are resonantly vibrated in the same phase substantially coincides with a natural frequency of the displacing devices in a second natural vibration mode in which the displacing devices are resonantly vibrated in opposite phase. (Note that as the displacement devices are driven near their resonance points, whether driven in phase or out of phase won't change their resonance. Additionally, how the displacement devices are driven, e.g. in or out of phase, is not further limiting to the claimed structure and therefore carries no patentable weight in this instance because this is a structure claim). The displacing device[s] include an elastic member (7) as a part thereof.

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Regarding claims 13 and 16, these claims do not make explicit that the first and second frequency bands are in fact different, therefore these claims are read on by the prior art.

Claims 6, 8, 13, 15, 16 and 17 are rejected under 35 U.S.C. 102(b) as being anticipated by Takekida (JP 53-82286). Takekida shows (figs. 2a, 2b) a method for driving an actuator comprising: a first displacing device (4a); a second displacing device (4b); a compound member (5a, 5b) connected to top ends of the first displacing device (4a) and the second displacing device (4b) and for compounding displacements of the first displacing device (4a) and the second displacing device (4b); wherein the first displacing device (4a) and the second displacing device (4b) are driven in a manner so as to move the compound member (5a, 5b) along an elliptic or a circular trail by using driving signals (6a, 6b) respectively having a frequency included in an overlapped region of a first frequency band and a second frequency band; the first frequency band is defined as a region between the resonance frequency and the anti-resonance frequency of the first displacing device in which a phase difference between a phase of a voltage of the driving signal and a phase of a current flowing in the first displacing device (4a) is substantially constant; and the second frequency band is defined as a region between the resonance frequency and the anti-resonance frequency of the second displacing device (4b) in which a phase difference between a phase of a voltage and a phase of a current flowing in the second displacing device (4b) is substantially constant. (Note that this description includes any phase difference from 0 to 360 degrees), The phase of the driving signal for driving the first displacing device (4a) has

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a phase difference with respect to the driving signal for driving the second displacing device (4b).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 6, 8, 15 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Okada et al. (JP 62-58883) in view of Takekida (JP 53-82286). Given the inventions of Okada et al. and Takekida as noted above, it is not explicitly clear that the displacing devices of Okada are driven with a phase difference. It would have been obvious to one having ordinary skill in the art to employ the driving method of Takekida in the device of Okada et al. since this is a known method of achieving the desired circular or elliptical motion sought by the Applicants in their device.

Allowable Subject Matter

Claims 3 and 4 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Claims 7, 9, 12 and 14 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

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The following is a statement of reasons for the indication of allowable subject matter: The structural features implicit and explicit in these claims are not met singly or in combination by the prior art. Nor are they suggested.

Any questions concerning this action should be addressed to Examiner Thomas M. Dougherty at (703) 308-1628.

tmd
tmd

May 14, 2001

Thomas M. Dougherty
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